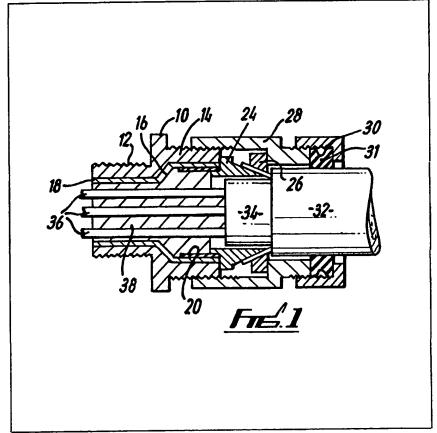
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- (71) Applicant
 Hawke Cable Glands
 Limited
 (Great Britain)
 Oxford Street West
 Ashton-under-Lyne
 OL7 ONA
- (72) Inventor
 Brian David Hamblin
- (74) Agents
 Wilson Gunn and Ellis
 41 Royal Exchange
 Manchester M2 7DB

(54) Electrical cable barrier

(57) British Standards 4683 and 5501 of 1971 set out the limits on the gap between unthreaded surfaces in a cable gland or barrier. With metal parts careful machining is required to meet these tolerances. The present invention provides a deformable, preferably oversize sleeve (18) in the body (10) of a cable barrier whereby a seal is formed between said sleeve and said body. A rigid support sleeve 20 may be disposed inside the deformable sleeve.

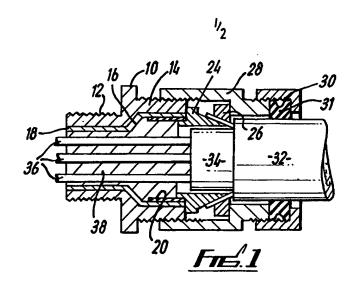


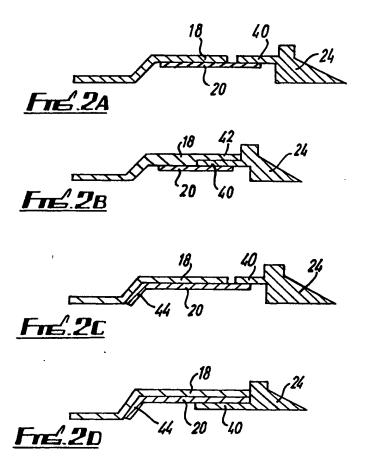
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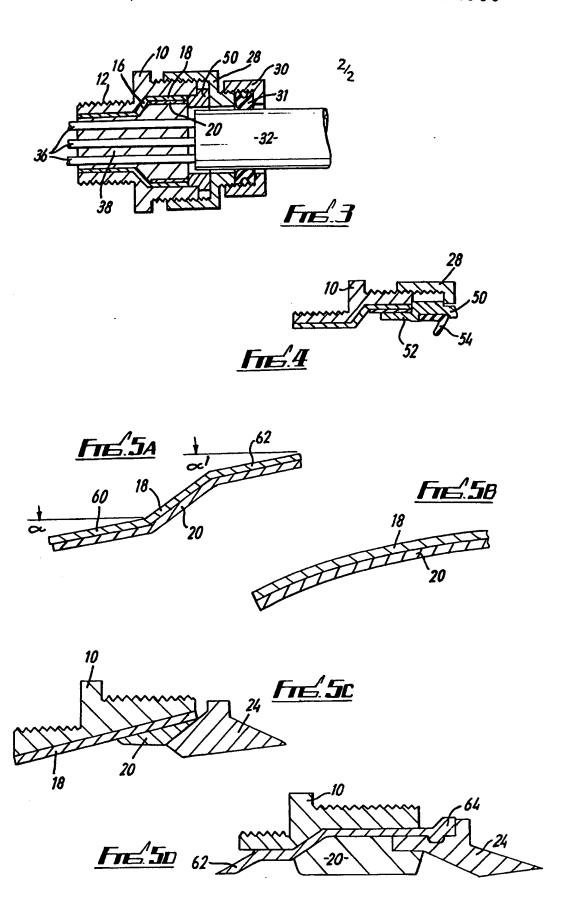
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SPECIFICATION

Electrical cable barri r

5 This invention relates to a barrier gland for electric cables.

Barrier glands are cable glands in which a barrier is formed around the cable or cable cores by a hardenable filler compound. Typi-10 cal barrier glands are described in our British Patent Specifications Nos. 1528347 and 1528348. In one form of barrier gland a sleeve or lining of rigid material, usually metal is provided in the gland for containing the 15 filler compound. Such a lining enables the gland parts to be moved relative to the filler compound after the filler compound has hardened to enable the gland to be "made off".

One of the problems with a metal liner is 20 that it must be produced to very close tolerances. If the liner is too big it will not fit within the appropriate gland parts. If it is too small then the gap between it and the surrounding gland part may be so large as not to 25 comply with the requirements of British Standards Nos. 4683 and 5501 of 1971 parts 1 and 5 which place limits on the gap between unthreaded surfaces in a cable gland.

The present invention has been made with

30 this problem in mind.

According to the invention there is provided a cable barrier comprising a hollow body part through which the cable or the individual insulated or uninsulated conductors of the 35 cable extend, a sleeve or lining located at least in part within said hollow body part, at least a part of said sleeve or lining being made of deformable material, a second hollow part engageable with said first body part to 40 deform said sleeve or lining thereby creating a seal between said first part and ssid sleeve or

lining and between said sleeve or lining and filler compound disposed in said sleeve or lining and around the conductors when the

45 cable barrier is in use.

By using a deformable sleeve or lining the invention overcomes both of the major problems outlined above. Such a deformable part can be made to much wider tolerances than a

- 50 rigid part, and the relaxation of tolerances means that the part can be made more cheaply, for example by moulding instead of by turning as is the case with rigid parts. In addition because the sleeve or lining now
- 55 forms a seal with the surrounding gland part, there is no gap between the parts and, therefore, the requirements of British Standard No. 5501 are met and British Standard No. 4683 of 1971 does not apply.
- The sleeve or lining comprised in the invention is, as stat d, of deformable mat rial which will form a seal with the surrounding gland part. Many differ nt kinds f material can b us d for xample natural or synthetic 65 rubb r or plastics. The sleeve r lining pr f r-

ably has an external shape which, at least in part, corr sponds to the gland part in which it is to be located. It is advantageous if the sleeve or lining is, at least in part, slightly 70 larger than the gland but in which the sleeve

or lining is received so as to ensure that deformation of the sleeve or lining takes place and that a seal is formed.

Specific embodiments of the invention will 75 now be described by way of example with reference to the accompanying drawings in

Figure 1 is a sectional side elevation of one form of cable barrier according to the inven-80 tion;

Figure 2A to 2D illustrate modified forms of sleeve or linings;

Figure 3 is a sectional side elevation of another cable barrier intended for use with 85 unarmoured cable;

Figure 4 shows a modification of a part of the embodiment of Fig. 3; and

Figure 5A to 5D illustrate further modified forms of sleeve or lining.

In the drawings, like parts of the different embodiments have been given the same reference numerals.

Referring to Fig. 1 the cable barrier comprises a hollow body 10 threaded externally at 95 one end 12 for reception in the tapped hole of a junction box or other electrical fitting. A counterbore 14 is formed at the other end of the body thereby defining a shoulder 16 within the body 10. As illustrated the shoul-

100 der is inclined to the longitudinal axis of the body but that is not essential; it may be perpendicular to the axis if desired.

A sleeve or lining 18 of deformable material is located in the body 10. In the illustrated 105 embodiment the sleeve 18 is shaped so as to correspond with internal shape of the body but that is not essential provided that a seal can be formed between the sleeve and the body.

An inner support sleeve 20 of rigid material 110 is located inside the sleeve 18. In the embodiment of Fig. 1 the support sleeve 20 extends along the counterbore. However, if desired the sleeve 20 may extend over the shoulder 16 115 and along the bore of the bore 10

The remainder of the cable barrier is of

conventional design. In the embodiment shown in the Fig. 1 armour clamping rings 24 and 26 are adapted to be urged together by

120 tightening cap 28 on the body 10. An end cap 30 is engageable on the cap 28 to compress a seal 31 onto the outer sheath 32 f the cable.

In us the cable sheaths inner 34 and outer 125 32 are cut back to expose the conductors 36 which are arranged to xtend through the sleev s 18 and 20. Filler compound 38 such as an epoxy r sin is disposed in the sleev s 18 and 20 and around the cores and then the 130 body 10 is forced onto deformable sle ve 18

by tight ning of cap 28. The sleeve 18 is compressed, at least in part by the body 10, the representation of the body. In addition a seal is formed between the sleeve 18 and sleeve 20 where they contact the filler compound.

As mentioned earlier the arrangement of sleeves 18 and 20 can be modified. Some examples of such modification are shown in 10 Fig. 2. In Fig. 2A the armour clamping ring 24 has a projection 40 which extends into the body counterbore 14. The support sleeve extends across the junction between the sleeve 18 and the projection 40. In the embodiment 15 of Fig. 2B the projection 40 is received in a rebate 42 on the underside of sleeve 18.

Fig. 2C is similar to the arrangement of Fig. 2A except that the sleeve 20 extends at 44 across the shoulder 16.

20 Fig. 2D is a modification of the arrangement of Fig. 2C in that projection 40 extends under both sleeves 18 and 20.

The invention may be applied to many different kinds of barrier gland and not just 25 with barrier glands for armoured cable. A barrier gland for unarmoured cable is shown in Fig. 3. It will be seen that it is substantially the same as the embodiment of Fig. 1 except that a single ring 50 replaces the armour 30 clamping rings 24 and 26.

The barrier gland of Fig. 3 can be modified in many ways. For example the sleeves 18 and 20 and ring 50 can be altered in the same way as for the embodiment of Fig. 1. In 35 another variant, shown in Fig. 4, the ring 50 is formed with an internal channel 52 which receives one arm of an L-shaped seal 54 of the kind described in our Patent Specifications Nos. 1389846 and 1399396. With the em-40 bodiment of Fig. 4 the end cap 30 and seal 31 can be omitted.

As has been stated the sleeve 18 does not need to correspond precisely to the internal shape of the body 10. In practice it is pre-45 ferred that the sleeve 18 should be oversize at least in part so that a seal will be formed between the sleeve 18 and body. For example as illustrated in Fig. 5A the parts 60, 62 of sleeve 18 which are received in the bore and 50 counterbore respectively of the body are inclined to the bore and counterbore by angles α and α'. The angles α and α' may be the same or different and may for example be up

to 16°.

A simplified example of modified sleeves 18 and 20 is shown in Fig. 5B and is of arcuate or curved form. Such a sleeve would be of particular use when the body is continuously taper d as shown in Fig. 5C rather than 60 having a bor and counterbor.

Fig. 5C also illustrates another modification to the arrangement of sle ves 18 and 20 which can be applied to a body 10 with a tapered bore. In this cas sleev 20 is wedge 65 shaped and is compressed, on tightening the

gland by th ring 24.

In the mb diment of Fig. 5D the sle ve 18 is in-turned at 62, the 1ft hand and the reof (as viewed in the drawing). At the right hand 70 end of sleeve 18 a thickened rime 64 is formed for engagement with the outwardly projecting flange on armour clamping ring 24. If desired the sleeve may be provided with an internal bead 66 adjacent the right hand end 75 thereof, the bead 66 being received in a

groove 68 in the ring 24.

CLAIMS

- A cable barrier comprising a hollow 80 body part through which the cable or the individual insulated or uninsulated conductors of a cable extend, a sleeve or lining located at least in part within said hollow body part, at least a part of said sleeve or lining being
- 85 made of deformable material whereby a seal is formed between first hollow part and said sleeve or lining.
- A cable barrier as claimed in Claim 1, wherein the sleeve or lining is adapted to
 form a seal with filler compound disposed in said sleeve or lining around cable conductors extending therethrough.
- A cable barrier as claimed in Claim 1 or Claim 2, wherein the sleeve or lining has a 95 shape which corresponds at least in part, to the internal shape of the hollow part in which said sleeve or lining is located.
- 4. A cable barrier as claimed in any preceding claim, wherein the undeformed sleeve 100 or lining has external dimensions which are at least in part larger than the internal dimensions of the first hollow part in which the sleeve or lining is located.
- A cable barrier as claimed in any pre-105 ceding claim, wherein a support sleeve is located within the deformable sleeve.
 - A cable barrier as claimed in Claim 5, wherein the support sleeve is of rigid material.
- A cable barrier as claimed in Claim 1 or
 Claim 6, wherein the support sleeve provides support for a part only of the deformable sleeve or lining.
- A cable barrier as claimed in any of Claims 5 to 7 wherein the support sleeve
 projects beyond an end of the deformable sleeve or lining.
- A cable barrier as claimed in any of Claims 5 to 8, wherein the projecting part of the support sleeve is adapted to engage
 another part of the barrier assembly.
 - 10. A cable barrier as claimed in any preceding claim, wherein the deformable sleeve or lining is adapted to ngage another part of the barrier assembly.
- 125 11. A cable barri r as claimed in any preceding claim, wherein the sleev or lining is of non-uniform cross-section.
 - 12. A cable barrier as claim d in Claim11, wherein the sleev or lining is st pped.
- 130 13. A cabl barrier as claimed in Claim

11, wherein the sle ve or lining is longitudinally tap red.

nally tap red.

14. A cable barrier, substantially as described herein with r ference to the accompanying drawings.

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